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ABSTRACT

The main purpose of this paper is to draw attention to assumptions that guide the instructional design process when implementing and organizing network-based learning environments in practice. In this case, the situated and socially shared cognition model and participation metaphor create the guiding paradigm for collaborative learning action, which stresses the socially shared knowledge construction and collaborative context of the learning environment. The case design reviewed in this paper is the Nursing Science module in the Open University, which is carried out through a WebCT-based network learning environment. As a conclusion, a collaborative learning model and instructional design paradigm integrating the dimensions of "intentionality," content, context, community, participation, facilitation, and self-assessment, are discussed. (Contains 16 references.) (Author/AEF)

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# SITUATED AND SOCIALLY SHARED COGNITION IN PRACTICE:

## Designing a Collaborative Network Learning Experience for Adult Learners

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**Abstract.** The main purpose of this presentation is to draw attention to assumptions that guide the instructional design process when implementing and organizing network-based learning environments in practice. In this case, the situated and socially shared cognition model and participation metaphor create the guiding paradigm for collaborative learning action, which stress the socially shared knowledge construction and collaborative context of learning environment. The case design reviewed here is the Nursing Science module in Open University, which is carried out through a WebCT-based network learning environment. As a conclusion, a collaborative learning model and instructional design paradigm integrating the dimensions of intentionality, content, context, community, participation, facilitation and self-assessment, are discussed.

**Key words.** Situated cognition, socially shared cognition, collaborative learning, network learning environment for adult learners

### 1. From individual to socially shared cognition: searching for a collaborative instructional paradigm

There is a growing tendency to strive for integration of individual and social dimensions in new learning environments. Situated cognition, or a situated learning approach, has made a significant impact on educational thinking since it was first analyzed and introduced by Brown, Collins and Duguid (1989). This instructional paradigm has been further developed by Jean Lave and Etienne Wenger (Lave 1988, Lave & Wenger 1991; Lave 1997; Wenger 2000), whose work has been instrumental in providing the research base and practical implications for the theory. A community of practice is seen as an environment where knowledge construction occurs and where culturally derived norms are formed and learned (Billet 1998). On the other hand, the sociocognitive view stresses the development of socially shared cognitions in groups. Social interaction is seen to be a paramount site for the development and practice of cognition. One might expect groups to perform better than individuals on various tasks, including learning, concept attainment, creativity, and problem solving. (Levine et.al. 1993; Scardamalia & Bereiter 1994). Both these views are heavily based on the work of well-known educational thinkers like Vygotsky and Dewey. The use of these kind of collaborative learning ideas as an approach to the design of learning environments has significant implications for the instructional design of web-based learning environments. As an instructional strategy, these situated or socially shared cognition

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models have been seen as a means of relating subject matter to the needs and concerns of learners (Shor 1987) and coordinating cognitive interaction with others (Levine et.al. 1993). These social ideas of learning understand it as a sociocultural and collaborative phenomenon rather than the action of an individual acquiring general information from a decontextualized body of knowledge (see Kirshner and Whitson 1997). The core idea in design is that knowledge and skills are learned in the collaborative contexts that reflect how knowledge is obtained and applied in real-life situations. In general, knowledge is understood as a result of social construction and production of meaning. Learning is understood as an interactive discourse with shared knowledge and enculturation process to the culture and institution behind the shared knowledge.

Learning becomes a social process dependent upon transactions with others placed within a context that resembles as closely as possible the practice environment. Anna Sfard (1998) discriminates between two differing metaphors for instructional design: the acquisition metaphor and the participation metaphor. The acquisition metaphor refers to human learning as acquisition of something. Learning is understood as knowledge acquisition and concept development in mind. This gives a one-sided idea of what learning and knowledge are. One can characterize the assumption of knowledge as dualistic. Knowledge is seen as a permanent and immutable truth that the learner is trying to absorb. Generally, learning is seen as an individual mental and inner state and reception of knowledge. Instead of that, the participation metaphor sees learning as participation in a certain community's meaningful action. Learning is understood as a socialisation and growth process into that community, where the culture, shared knowledge and values are absorbed. What is central is the dialogue where knowledge is shared and constructed and where the meaningful experiences are coming about. When organising learning, this directs attention to the development of communities and environments of practice, not individual learners only. The situated and socially shared cognition views and participation metaphor create a guiding paradigm where learners' social and communicative skills are supported, guidance for collaboration given and the whole learning environment can function as a knowledge-building community.

**2. The Case Design Reviewed**

The case design reviewed here is the Nursing Science module in Open University, which is carried through a WebCT-based network learning environment. These program platforms developed for web-based instruction, like WebCT, Lotus Learning Space, Future Learning Environment (FLE) and many others, contain discussion groups, group work areas and other communication channels, which support learning as dialogue, knowledge sharing and knowledge construction with other learners. Information networks provide possibilities for this kind of communicative learning without the limits of time and study place commitments. The development of collaborative learning practices is seen as important, which is something more than just combining and directing individual learning processes together. In this case the Nursing Science module was divided into three courses, which all share the same organised structure (see Fig.1).

When outlining the collaborative basis and participation metaphor in practice it is important to pay attention to the organisation of communication and learning processes in the learning environment. In this case learning is not only virtual; it also involves contact teaching as orientation and small group work under a mentor's supervision. The task of the small group is to continually assess the intellectual growth of the individual and the community of learners. In an

adult learning group, the mentor fosters the notion of cognitive apprenticeships (see Brown, Collins, and Duguid 1989). When virtually participating in a network discussion group, individual learners witness how colleagues solve problems and have developed their own solution paths. In an ideal situation, these tools and methods of cognitive apprenticeship include discussion, reflection, evaluation, and validation of the community's perspective. Instructors (teacher and mentors) must provide a scaffold for new learners, that is, know the type and intensity of guidance necessary to help learners master the situations they face in the new learning settings. As learners acquire additional skills, less support will be needed. Instructors recast their roles from content transmitters to facilitators of learning by tracking progress, assessing products produced by learners, building collaborative learning environments, encouraging reflection, and helping learners become more aware of contextual cues to aid understanding and transference (Ottoson 1997).

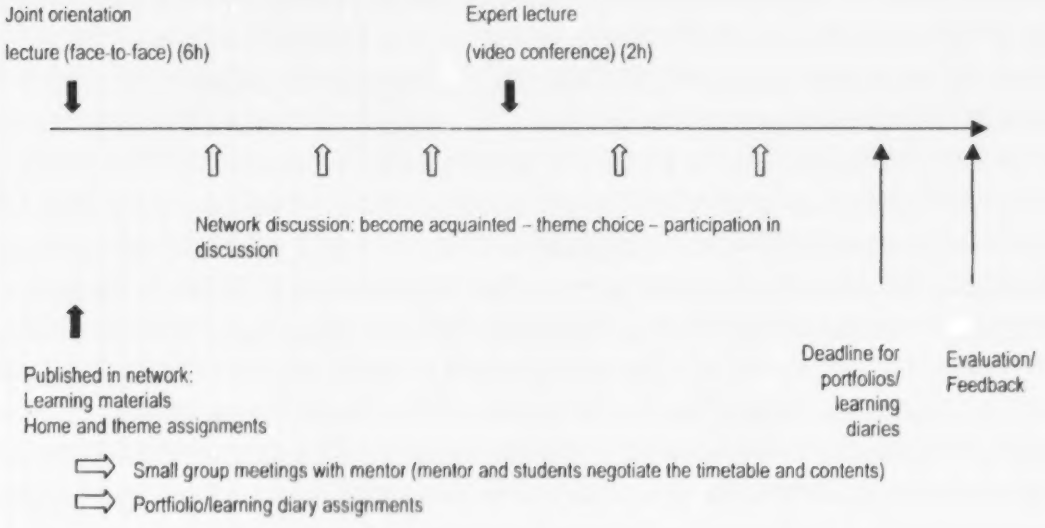
Joint orientation
lecture (face-to-face) (6h)
Expert lecture
(video conference) (2h)
Network discussion: become acquainted – theme choice – participation in discussion
Published in network:
Learning materials
Home and theme assignments
Deadline for portfolios/ learning diaries
Evaluation/ Feedback
Small group meetings with mentor (mentor and students negotiate the timetable and contents)
Portfiolio/learning diary assignments

Figure 1. The Structure of the Network Learning Process in Open University Nursing Science Courses

The educational basis of participants was a specialist vocational degree in the field of nursing or a first year university examination in Nursing Science in Open University. Most of the participants are females. The target group is interesting because it is not considered a typical network learner group. The central requirements in these network courses are to participate in network discussion and to construct a learning portfolio. The learning portfolio consists of several assignments: learning diary, analysis of network discussion themes and written home assignment. Students are encouraged to do the home assignment and analysis assignment together with a fellow student (or students).

The main research question in this case was to try to find through these collaborative learning experiences some evidence and conceptions of creating a general design paradigm for collaborative network learning settings. The main research data collection and analysis method was qualitative content analysis of the authentic learning diaries from the first two network study modules. Descriptive statistical data supported the analysis. The content analysis process was carried out resting on the situational and sociocognitive learning theory. The learners' concrete experiences were

constantly compared with these theoretical assumptions. The whole qualitative analysis is thus a result of a discourse involving theoretical and practical conceptions, not the learners' experiences alone.

## 3. Experiences of Collaborative Learning in Network Context

The community of students attending these network-based courses consisted of two larger groups: altogether 39 students in the Tampere area and 13 students in Lohja. Both locations have their own mentors supervising one or several smaller study groups. An average nursing science student in network studies in this case is a 37-year old female with family who is active in working life (age range from 23 to 54 years). It is notable that 61.5% of them had previous experience of adult education in Open University. Some of them had attained a remarkable amount of university level courses. Almost everyone had also work experience from the field of nursing (average 11 years).

Content analysis of learning diaries showed that the learners' study attitudes, goals and approaches for learning in this case were quite disparate. The learning environment experienced and constructed by learners was different from that organised by instructors. From the perspective of the learner's personal goals it is a matter of exchange and practical value of the education and personal meaning of studies as well. The approach to learning and personal meaning of studies can tell us more of an individual learner's goal structure, underlying motives for participation and strategic choices during the studies. In this case, the vocational approach to and goal for learning was predominant. Almost half of the participants (48,1%) could be classified into this category during their studies. Vocational, practical goals for learning refer to acquiring qualifications for work and applying the knowledge to practice The aim is to promote professional expertise and growth. The essential interest focuses on how studies can be connected integrated into practice and how knowledge can be utilized. Personal growth and theoretical fascination are of secondary importance. This places demands on situational and collaborative learning: how to formulate meaningful and authentic assignments and themes, which serve the vocationally oriented learner's needs? The learning diaries also contained references to flexibility of network studies. These kind of learning possibilities were better accommodated to work requirements and life situation (i.e. shift work) than regular extension studies. Network studies enable learning for adults without the limits of time and study place commitments. Many adult learners were also able to learn better and with greater depth through these network studies. However, online courses require self-motivation on the part of the learner: the learning process is best characterized by internal motivation. Learners must be also able to manage their own time and set deadlines for themselves. Failed time management was often cited as reason for difficulties in online learning.

Participants created their own knowledge out of the raw materials of experience, i.e., the relationships with other participants, the activities, the environmental cues, and the social organization that the whole learning environment developed and maintained. As Young (1993) suggests, learners should be offered situations that will engage them in complex, realistic, problem-centered activities that will support the desired knowledge to be acquired. For network learners the studies in this case involved working with theoretical and practical problems and the development of their own qualifications. Situated cognition reminds us that adult learners are a rich and diverse source of stories; data that can transform the study group from a source of transferring knowledge from instructor to learners to a resource for interpreting, challenging, and creating new knowledge. Interactions among the learners and environment holds the promise of having learners directly intervene in and change the processes that surround their lives at home, in the

community, and at the workplace. Learners in a situated environment must be encouraged to identify their own questions, goals, and issues that arise through emerging theme discussions in the network or as self-evaluation through learning diaries. In general, we reached the conclusion that the social and cultural environment where the learning occurs essentially influences the knowledge creation in the learning process. In this case, we learned that adult learners need opportunities in the learning environment to participate actively by formulating and evaluating problems, questions, conclusions, arguments, and examples. Face-to-face group meetings with mentor as well as network discussion groups worked fine for this. In an adult group of this kind, collaborative learning refers to creating the conditions in which participants will experience the complexity and ambiguity of learning in the real world (i.e. working life). Different kinds of group arrangements (face-to-face and/or virtual) proved to be successful instructional tools in this.

**4. Conclusions**

Collaboration and shared cognition in learning places the learner and the community of learners in the center of the instructional design. In our network study groups learners were called to learn by analyzing their goals, asking questions and formulating problems, to obtain information relevant to these questions and to interpret this information and share their experience with others. Collaborat e learning was based upon consensus building through cooperation by group members (see Sharan & Sharan 1992) .n the case design reviewed here, our collaborative learning model integrated content, context, community, participation and facilitation (see Anderson, Reder & Simon 1996; Choi & Hannafin 1995; Brown, Collins, and Duguid 1989, Lave 1988) with intentionality and continuous self-assessment. Thus, the network learning environment design in this case could be structured according to the following principles:

- ✓ **Intentionality** - support for personal goal analysis and placement
- ✓ **Content** - support for autonomous acquisition of information and shared knowledge construction;
- ✓ **Context** - the situations, problems, themes, values, beliefs, and learning environmental cues by which the learner gains and masters content;
- ✓ **Community and collaboration** - the organization of groups for knowledge-building with which the learner will create and negotiate meaning of the knowledge and situation (small group with one or two colleagues - mentor group - network discussion group - entire group);
- ✓ **Participation** - the social organization of process, rules and roles by which learners working together and with experts solve problems related to study themes and everyday life circumstances;
- ✓ **Facilitation** - facilitation according to cognitive apprenticeship model; and
- ✓ **Self-assessment** – continuous authentic assessment in the form of learning diary and learning portfolio.

When organising learning, these assumptions direct attention to developing learning communities and environments of knowledge-building, not individual learners only. The construction of knowledge is viewed as the product of interaction between individuals' prior knowledge and socially constructed knowledge. This kind of collaborative learning is a negotiated and transformational process, in which individuals test and contest their knowledge with others. What is also important is the self-assessment of learners, which is well suited to process oriented learning. What we realized was that this kind of instructional paradigm works particularly well for adult learners of theoretical science study modules.

## References


Anderson, J.R., Reder, L. M. & Simon, H.A. (1996) Collaborative learning model and Education. Educational Researcher 25, no. 4, 5-11.

Billet, S. (1998) Appropriation and ontogeny: identifying compatibility between cognitive and sociocultural contributions to adult learning and development. International Journal of Lifelong Education 17, no. 1, 21-34.

Brown, J.S.; Collins, A. & Duguid, P. (1989) Situated Cognition and the Culture of Learning. Educational Researcher 18, no. 1, 32-41.

Choi, J. & Hannafin, M. (1995) Situated Cognition and Learning Environments: Roles, Structures, and Implications for Design. Educational Technology Research and Development 43, no. 2, 53-69.

Kirshner, D. & Whitson, J., eds. (1997) Situated Cognition: Social, Semiotic, and Psychological Perspectives. Mahwah, NJ: Lawrence Erlbaum Associates.

Lave, J. (1988) Cognition in practice : mind, mathematics and culture in everyday life. Cambridge: Cambridge University Press.

Lave, J. (1997) The Culture of Acquisition and the Practice of Understanding. In D. Kirshner and J. Whitson (ed.) Situated Cognition: Social, Semiotic, and Psychological Perspectives. Mahwah, NJ: Lawrence Erlbaum Associates.

Lave, J. & Wenger, E. (1991) Situated learning: legitimate peripheral participation. Cambridge: Cambridge University Press.

Levine, J.M., Resnick, L.B. & Higgins, T.E. (1993) Social Foundations of Cognition. Annu.Rev.Psychol. 1993. 44, 585-612.

Ottoson, J. (1997) After the Applause: Exploring Multiple Influences on Application Following an Adult Education Program. Adult Education Quarterly 47, no. 2.

Scardamalia, M. & Bereiter, C. (1994) Computer Support for Knowledge-building Communities. The Journal of the Learning Sciences, 3, 265-283.

Sfard, A. (1998) On Two Metaphors for Learning and the Dangers of Choosing Just One. Educational Researcher 27, no. 2, 4-13.

Sharan, S. & Sharan, Y. (1992) Expanding Cooperative Learning through Group Investigation. New York: Teachers College Press.

Shor, I. (1987) Critical Teaching and Every Day Life. Chicago: University of Chicago Press.

Young, M.F. (1993) Instructional Design for Collaborative learning model. Educational Technology Research and Development 41, no. 1, 43-58.

Wenger, E. (2000) Communities of Practice. Learning, Meaning and Identity. New York: Cambridge.

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